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REMARKS

Claims 1, 11 and 23 have been amended. Claims 2 and 14 have been previously withdrawn from consideration. Twenty-nine (29) claims remain pending in the application: Claims 1, 3-13 and 15-31. Reconsideration of Claims 1, 3-13 and 15-31 in view of the amendments above and remarks below is respectfully requested.

Initially, Applicants note that the Office Action mailed June 18, 2003 was incorrectly made FINAL. This was discussed with the Examiner in a telephonic interview of June 26, 2003 and resulted in the mailing of the Office Action dated July 3, 2003. Applicants acknowledge with appreciation the Examiner's efforts to resolve this issue. Additionally, this response is being filed Monday, January 5, 2004, since the due date of January 3, 2004 falls on a Saturday and includes a three (3) month extension of time.

1. Claims 1, 3-10 and 23-31 stand rejected under 35 U.S.C. 102(e), as being anticipated by U.S. Patent No. 6,134,258 (Tulloch et al.).

The prior art described by Tulloch was unknown to Applicants and we thank the Examiner for its citation; however, Applicants respectfully traverse the rejection. Tulloch teaches a geometry for a diode-pumped solid-state laser which is fundamentally different than the embodiments of the invention covered by claims 1, 3-10 and 23-31, such as described below.

As entitled, Tulloch teaches a "Transverse-pumped slab laser/amplifier" in which an optical beam at the lasing wavelength propagates within a solid laser slab in a zig-zag path between two reflecting faces (see col. 3, lines 6-8 of Tulloch, emphasis added). Specifically, as shown in FIG. 2 of Tulloch, the laser gain media is a slab 1 in the shape of a parallelepiped such that the opposing reflecting faces are parallel. In fact, this is required in order to get the zig-zag propagation necessary for good performance in this geometry. Tulloch teaches a laser slab that is a regular six-sided, parallelepiped as described in Column 4, lines 24-26:

"The length of the reflecting faces 53 and 54 is l. The distance between the reflecting faces is the thickness t of the slab. The

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distance between top face 55 and bottom face 56 is the width w of the slab.”

See also column 4, lines 28-30 of Tulloch:

“As shown in FIG 2 and FIG 4, attached to the two reflecting faces are reflective layers 7A and 7B. An optical beam 10 propagates through slab 1 in a zig-zag fashion between the reflecting faces.”

In contrast, independent claims 1 and 23 have been amended to recite that the beam does not propagate directly between parallel reflecting surfaces. Support for this amendment may be found in the application as filed, e.g., at least in FIGS. 1 and 2 and the supporting text. Thus, in the embodiments covered by claims 1 and 23, the geometry of the gain medium is such that the beam does not propagate directly between parallel reflecting surfaces. On the other hand, according to the teaching of Tulloch, the reflecting surfaces are parallel to each other in order that the beam directly propagates in the zig-zag fashion between the reflecting surfaces. There is no teaching or suggestion by Tulloch that the reflecting surfaces forming the zig-zag propagation be non-parallel to each other. Thus, according to the teaching of Tulloch and in contrast to that recited in claims 1 and 23, the beam does propagate directly between parallel reflecting surfaces. If the beam of Tulloch were to not directly propagate between parallel reflecting surfaces, the beam would not propagate in the zig-zag fashion, which is the core of the teaching of Tulloch. Thus, Tulloch teaches away from such modification.

Therefore, since Tulloch does not disclose or teach the invention as recited in claims 1 and 23, Tulloch does not anticipate or render obvious claims 1 and 23. Thus, it is respectfully submitted that the rejection is overcome and should be withdrawn. Similarly, the rejection should also be overcome with respect to claims 3-10 and 24-31 due to at least their respective dependency on claims 1 and 23.

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2. Claims 11-13 and 15-22 stand rejected under 35 U.S.C. 102(b), as being anticipated by U.S. Patent No. 5,619,522 (Dube).

Applicants respectfully traverse the rejection. With respect to independent claim 11, Dube does not disclose or teach "a gain medium in the shape of a polyhedron in which a beam to be amplified enters the gain medium through one face of the polyhedron and which contains an internal core section in which there is no gain material", as recited in amended independent claim 11.

Dube teaches an asymmetric pump cavity which is designed to reflect pump light (illustrated as ray L) into a gain medium (i.e., laser element 15) which is referred to as a "rod" or "cylinder" and is illustrated in FIG. 6. The purpose of the polyhedral pump 400 of FIG. 6 (including sleeves 431 and 441) is to reflect diode pump light (L) from the pump light source 91 into a gain medium in the shape of a rod (laser element 15) in order to amplify the beam passing through the gain medium, NOT to serve as a gain medium to amplify the beam to be amplified that passes therethrough. Furthermore, contrary to that noted on page 5 of the office action, the center axis 16 of the laser element 15 is not an internal core section in which there is no gain material. Axis 16 is part of the laser element 15 and it is well known in the art that this portion is a gain material in a laser device. Accordingly, Dube does not teach the use of a gain material in the shape of a polygon which contains an internal core section in which there is no gain material. In fact, Dube teaches the diametric opposite: Dube teaches the use of a "cavity" in which there is no gain material which is used to distribute pump light onto a gain material in the shape of a cylinder which occupies this cavity.

Furthermore, even if sleeves 431 and 441 are interpreted as the gain medium, pump light L is directed into the sleeves, NOT a beam to be amplified, as now recited in claim 11. According to Dube as shown in FIG. 7, the laser beam 250 to be amplified is directed through the laser element (within pump 200), while pump light L emitted from the pump source 91 is directed into the pump to be distributed to the laser element by sleeves 431 and 441. Claims 1, 11 and 23 have been amended to further clarify that the beam is a "beam to be amplified"; thus, the recited beam is not pump light. Support for this amendment may be found

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at least at page 9, lines 14 of Applicants' specification. It is well understood in the art that a "laser beam to be amplified" and "pump light" are very different and have different functionality in a laser device. Additionally, dependent claims 17-19 recite "optical pump radiation", which is similar to the pump light L of Dube. Therefore, according to the doctrine of claim differentiation, the term "beam to be amplified" recited in claim 11 should be interpreted as something different than the "optical pump radiation" of claims 17-19. Thus, the pump light (L) of Dube cannot be reasonably interpreted as the "beam to be amplified" recited in claim 11. Therefore, with this clarification and for at least the reasons described above, Dube does not disclose or teach that recited in claim 11.

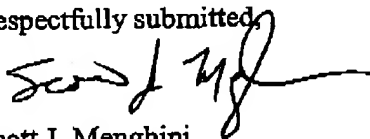
Therefore, since Dube does not disclose or teach the invention as recited in claim 11, Dube does not anticipate or render obvious claim 11. Thus, it is respectfully submitted that the rejection is overcome and should be withdrawn. Similarly, the rejection should also be overcome with respect to claims 12-13 and 15-22 due to at least their dependency on claim 11.

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CONCLUSION

Applicants submit that the above amendments and remarks place the pending claims in a condition for allowance. Therefore, a Notice of Allowance is respectfully requested. By way of this amendment, Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone the undersigned at (858) 552-1311 so that such issues may be resolved as expeditiously as possible.

Respectfully submitted,



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